

REMARKS

Reconsideration of this application is respectfully requested. Claims 1-16 and 18-19 are in this application and are presented for the Examiner's consideration in view of the following comments.

At the outset, Applicants' note that the Examiner has marked item number 10, "the drawings," of the "Office Action Summary" paper, but has not indicated either acceptance or objection to the drawings thereon. Since the Examiner's "Detailed Action" does not mention the drawings, Applicants presume for this response that the drawings have been accepted by the Examiner.

The Examiner has rejected claims 1-16 and 18-19 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,914,988 issued June 22, 1999 to Hu et al. ("*Hu*"). Applicants respectfully disagree.

Respectfully, the Examiner's reasoning for asserting that *Hu* anticipates Applicants' independent claims is flawed for any one of a number of reasons. For example, consider Applicants' independent claims 1 and 5, which require in part:

feed-forward processing said re-encoded symbol data to produce difference data representative of a difference *between* successive symbols of said re-encoded symbol data.

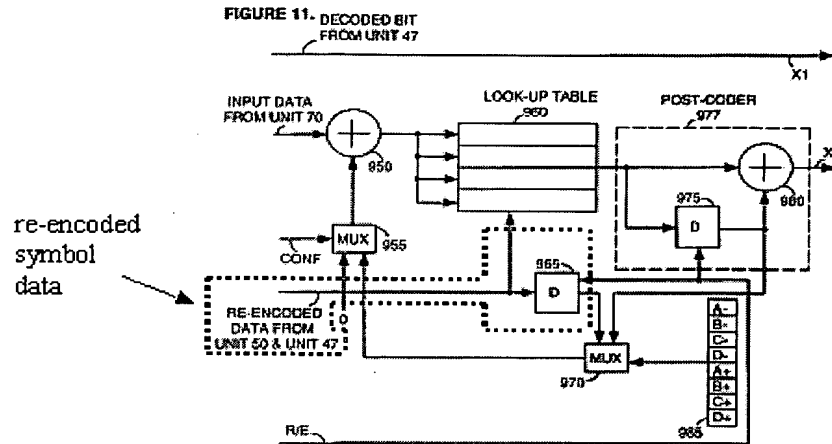
In comparing these requirements of Applicant's claims 1 and 5 to *Hu*, the Examiner notes:

a processor (60 FIGURE 1, FIGURE 11) for feed-forward processing the re-encoded symbol data (output 50 FIGURE 1) to produce difference data representative (output 960 FIGURE 11) of a difference between successive symbols of the re-encoded symbol data (the successive symbols are:  $S_{n-1}$  from 950,  $S_n$  from RE-ENCODED DATA of FIGURE 11; the difference is provided by the 960 as stated in column 13, lines 57-65, wherein the 960 does the comparing.

Emphasis added.

Initially, Applicants respectfully note that Applicants do not understand where the Examiner gets support from *Hu* that  $S_{n-1}$  is from element 950 of *Hu* and  $S_n$  is from the re-encoded data of FIG. 11 of *Hu*. While it is true that delay element 70 delays the realigned data — as known in the art, this delay is to compensate for the processing delay presented by branch metric computer 30, Viterbi decoder 40 and re-encoder 50 such that the re-encoded data is still synchronized with the realigned data, i.e., at the same time interval  $n$ .

Regardless, the underlined portion of the Examiner's text is simply wrong. First, to the extent there is re-encoded symbol data present in FIG. 11 of *Hu*, Applicants have added a dotted line region to FIG. 11 of *Hu*, reproduced below, to highlight the re-encoded symbol data.



As can be observed from the figure above, **nowhere** is there an element in FIG. 11 of *Hu* for determining difference data representative of a difference **between successive** symbols of said **re-encoded symbol data** as claimed by Applicants. In particular, the re-encoded symbol data of *Hu* is applied to Loop-Up Table 960 to select a coset (*Hu*, col. 13, lns. 57-60) and also applied to delay element 965 (*Hu*, col. 14, ln. 26). But **nowhere** is there an element for determining difference data between successive symbols of said re-encoded symbol data as claimed by Applicants.

Second, the Examiner states that  $S_{n-1}$  is from element 950 of *Hu* and  $S_n$  is from the re-encoded data of FIG. 11. Even if this was true — this does not meet Applicants' claim requirements where both  $S_n$  and  $S_{n-1}$  are from re-encoded data.

Third, even assuming that the Examiner means that the successive symbols are from element 950 — element 950 processes the delayed symbols from unit 70 **not re-encoded symbols** as required by Applicants' claims.

Fourth, the Examiner points to look-up table 960 of *Hu* as providing "difference data representative of a difference between successive symbols of said re-encoded symbol data." Again, the Examiner is wrong. In particular, *Hu* states:

Look-up table function 960 of FIG. 11 compares the input symbol output from adder 950 with each of the two constellation points in the coset defined by inputs Z1 and Z0. The constellation point closest to the received delayed symbol point is determined and the Z2 value of this constellation point is provided to post-coder 977 as the decoded Z2 value for the first interleaved symbol.

*Hu*, col. 13, Ins. 61-63; emphasis added.

In other words, for each delayed symbol provided by element 950, the closest constellation point is selected. That is, a difference between each delayed symbol and each constellation point is determined. Thus, look-up table function 960 does not even compute difference data representative of a difference between successive symbols let alone difference data representative of a difference between successive re-encoded symbols as claimed by Applicants.

Fifth, as can be observed from the text of *Hu* cited above, look-up table function 960 of *Hu* uses the re-encoded symbol data to select a coset. Look-up table function 960 of *Hu* does not determine a difference between successive re-encoded symbol data as required by Applicants' claims.

Applicants further note that the Examiner states that:

*Hu* et al. suggests to compute the distance of the encoded input symbol from different cosets by look-up tables or with subtraction, absolute value and comparison operations in column 7, lines 20-25).

Emphasis added.

Even assuming for the sake of argument only that the Examiner's statement above was correct — this is not Applicants' claimed invention. In other words, Applicants' claims do not require computation of difference data between a re-encoded symbol and a signal point of a coset. As noted above, Applicants' independent claims 1 and 5 require difference data between successively re-encoded symbols.

Finally, Applicants' independent claims 1 and 5 require

deriving decoded symbol data using said delayed data and said difference data.

Since, *Hu* does not produce difference data as claimed by Applicants, it is not possible for *Hu* to describe or suggest Applicants' claimed "deriving decoded symbol data using said delayed data and said difference data." Applicants note that the Examiner states with respect to this requirement that *Hu* shows:

deriving decoded symbol data (output 977 FIGURE 11) using the delayed data (INPUT DATA FROM 70 of 950 FIGURE 11) and the difference data (two inputs of 960: one from UNIT 70, one from RE-ENCODED DATA FIGURE 11).

However, this analysis by the Examiner also misses the mark. As noted above, Applicants' claims 1 and 5 require difference data between successive re-encoded symbol data. This simply is not shown or described in *Hu*. Further, the Examiner's analysis is simply wrong. In particular, the Examiner states that post-coder 977 of *Hu* uses the delayed data and the difference data. This is not correct. As can be observed from FIG. 11 of *Hu*, post-coder 977 only uses the difference data representative of a difference between a delayed symbol and the closest signal point of a selected coset. (*Hu*, col. 13, lns. 61-63.)

Similar comments exist with respect to Applicants' independent claims 13 and 18. For example, independent claim 13 requires "a difference between successive symbols of said re-encoded symbol data;" while claim 18 requires "a difference between successive symbols." Further, both claims require deriving decoded symbol data using the difference data and the delayed data.

In view of the above, Applicants respectfully submit that independent claims 1, 5 13 and 18 are patentable over *Hu*. Consequently, the rejection of dependent claims 2-4, 6-12, 14-16 and 19 has also been removed.

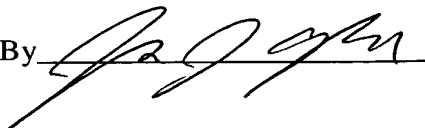
As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited. If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that the Examiner telephone Applicants' attorney at 1-609-734-6839 in order to overcome any additional objections that the Examiner might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 07-0832 therefor.

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